Nontidal Network Workgroup Monthly meeting

Wednesday, October 19th, 2022
1:30PM – 3:00PM

Meeting Materials: Link
This meeting was recorded for internal use to assure the accuracy of meeting notes.

ACTIONS

- ✓ Contact Breck Sullivan (bsullivan@chesapeakebay.net) if you would like to attend a background webinar on enhancing the CBP monitoring networks (December 13th, 10AM-12PM) and/or a monitoring kick-off meeting (January 11th, time TBD) to plan for a partnership approach to sustaining the monitoring networks
- ✓ At future NTN meeting, Nieko Santoro will share map of the watershed sites he selected for potential monitoring investment compared to current sites.
- ✓ Peter Tango will reach out to Peter Claggett to see if this effort to select small watershed monitoring sites can make use of any of his mapping products.
- ✓ Tammy Zimmerman will discuss small watershed monitoring site selection with Mark Brickner and Jamie Shallenberger for PA.
- ✓ Tom Parham will discuss small watershed monitoring site selection with the appropriate people in the MD agricultural sector.
- ✓ Cindy Johnson will reach out to Valley Regional Office to discuss small watershed monitoring site selection in VA.
- ✓ Lucretia Brown will discuss small watershed monitoring site selection with colleagues involved with the Anacostia restoration and remediation work.

MINUTES

Participants:
Amy Goldfischer (CRC), Breck Sullivan (USGS), Carl Friedrichs (VIMS), Cindy Johnson (VADEQ), Doug Chambers (USGS), Doug Moyer (USGS), Jamie Shallenberger (SRBC), Kaylyn Gootman (EPA), Ken Hyer (USGS), Kristen Heyer (MDNR), Lee McDonnell (EPA), Lucretia Brown (DC DOEE), Mark Nardi (USGS), Meighan Wisswell (VA DEQ), Mike Mallonee (ICPRB), Nick Murray (WVDEP), Nicholas Santoro (USGS), Peter Tango (USGS), Qian Zhang (UMCES), Scott Phillips (USGS), Tammy Zimmerman (USGS), Tom Parham (MD DNR), Tyler Shenk (SRBC)

1:30 PM Announcements

- Good news: the network is secure!
- Reminders: Conferences
  - 11th U.S. Symposium on Harmful Algae, Albany, NY, October 23-28, 2022
  - National Water Quality Conference, Virginia Beach, VA, April 24-28, 2023
  - CERF – Portland, OR, November 12-16, 2023

    - C*Sci 2023 Tempe/Phoenix AZ. May 22-26, 2023. Community Science Conference. In person, light hybrid option. Session proposals due Nov 19, abstract requests will be early December 2022.

- Peter Tango told the group about a VA DEQ-USGS training on water quality sampling techniques for nontidal monitoring in VA yesterday at the Rivanna River.
- Peter announced that the nontidal monitoring network is secure and we can think about expanding along with sustaining the network.
- Jamie Shallenberger said that Susquehanna River Basin Commission (SRBC) and USGS PA Water science exchanged a couple of monitoring stations. SRBC gave Marietta at the Susquehanna River to the USGS. The USGS gave two stations in the Juniata River to SRBC. The USGS will be putting continuous monitors into the Marietta at Susquehanna.

1:40 PM

- Overview of the Enhancing Monitoring Networks report – *Breck Sullivan (USGS), Peter Tango (USGS)*
    - The report is completed, published, Fundamental Science Practices compliant, and available!
    - Nontidal network specific monitoring recommendations highlights
    - Next step – Partnering toward further implementing recommendations –
        - Targeting for informational webinar on where we are on sustaining the existing network and successes/gaps remaining in the list of recommendations – December 2023
        - Partnering effort addressing network needs/gaps kick-off meeting - January 2023

- The report is FSP compliant meaning the report went through Bureau of Approving Officials (BAO) through the USGS.
- The report can be viewed on the STAR website under Projects and Resources: https://www.chesapeakebay.net/who/group/scientific-and-technical-analysis-and-reporting
- Breck gave an overview of the monitoring report process to remind everyone where we started. The Principals' Staff Committee was given an overview of the status and potential reductions to the monitoring networks in early 2021. STAR listed the status of networks as "fair". The PSC asked, what do we need to improve our monitoring networks? What are the status and threats of the networks, and what is needed to address capacity shortfalls?
- A team formed from STAR and STAC met with agencies and jurisdictional representatives as well as Goal Implementation Teams (GITs) to ask questions about the Chesapeake Bay core monitoring networks (Tidal, Nontidal, Citizen Monitoring, Benthic, Submerged Aquatic Vegetation, and Land Use). This team created portfolios for each of the monitoring networks and a menu of recommendations to improve each network.

The team also included recommendations from the GITs on improving monitoring for other Outcomes in addition to water quality.

- The recommendations and funding estimates do not specifically include analysis, but will be considered in subsequent discussions.
- Recommendations were initiated from the Science Needs Database and developed from conversations with agencies, jurisdictions, groups responsible for current monitoring networks and GITs. They shared sampling designs to address data collection needs and helped the report team develop cost estimates for the recommendations.
- The team compiled cost estimates for 5 years.
- Key findings included in the report: monitoring is critical, monitoring for many CBP outcomes is insufficient, and opportunities for funding exist to invest in the recommendations. Section 1 of the report details the core monitoring networks, including status, gaps, vulnerabilities and recommendations. Section 2 includes the monitoring needs of all the Outcomes in the CBP Watershed Agreement. We categorized these Outcomes into those who need to focus on maintaining the success of their existing monitoring efforts, those who need to focus on enhancing the efficiency and capacity of their monitoring efforts, and those without a monitoring network who need to establish a new coordinated monitoring network. Section 3 discusses a partnership approach to build out the networks based on these recommendations. Section 4 provides additional details and reference material.
- A lot of partner support will be needed to grow our networks. There will be a webinar in December for partners on background information and opportunity for questions of the report team. In January, there will be a kick-off meeting to evaluate opportunities for establishing sustainable funding.
- Today's focus will be on the Nontidal Network recommendations. The recommendations in the report included:
    - Enhance network efficiency and capacity – purchase equipment and supplies for 5 advanced River Input Monitoring (RIM) continuous monitoring sites and sustain them (operation and maintenance costs)
    - Add 5 small watershed continuous monitoring stations (both initial investment and sustaining costs)
    - Annual network sustainability and integrity – operation and maintenance
    - Add 3 lower Susquehanna continuous monitoring stations – capital costs and sustainment
    - Add 10 more discrete samples at Marietta annually, and operation and maintenance costs for this
    - Fill any station loss that happens
- How can the NTN WG help?
    - Help with partnership approach. Year 1 funding is supported, but sustainable funding is still needed.
    - Assist with criteria for picking locations for new stations.
    - Attend webinar and kick off meeting if interested.

1:55 PM

- Funding updates/status of each recommendation
    - Background on funding status – *Lee McDonnell (EPA) and Mark Nardi (USGS)*
        - Lee said that about $940,000 were funded for enhancing the con-mon packages for the RIM network ($325,000 plus $240,000 for operations and maintenance), 5 new con-mons for small watersheds ($375,000). For backfilling station loss, some of the things included in that were tidal, but about $400,000 are funded for backfilling through the Infrastructure Investment and Jobs Act (IIJA). The January meeting will be about securing funding for the future. The IIJA really helped this year but we need to figure out how to sustain funding going forward.
            - Small watershed monitoring – funding available, strategy for distribution and site selection - *Mark Nardi (USGS)*
                - Timeline on site selection decisions with small watersheds - FY23, FY24
        - Funding for equipment to support 5 new small watershed sites was transmitted in the FY23 EPA/USGS NTN budget.
        - USGS is in the process of ordering QW equipment (reporting 4-to-6-
        - month lead times right now). Unfortunately the prices have gone up significantly for instruments.
        - EPA has indicated O&M support for the 5 sites in outyear budgets
        - Ideally, we'd like approximately 4 months lead time on site selections in order to reconnoiter, get permissions, and build out site.
        - The genesis for 5 new small watershed sites come from an EPA/NRCS/USGS white paper published about a year ago. We need more monitoring in small agricultural watersheds to observe the impacts of conservation practices on water quality and habitat. In the upper reaches is where we expect to see those changes.
        - About 97% of the total stream length in the US is in lower order (first-fourth) streams. As part of the exercise for the white paper we looked at what was being monitored where. We found that we're doing a good job monitoring large rivers, a fair job of monitoring second and third order streams, and for zero to first order streams we're not a good job at all monitoring them. Edge of field is ok, there have been a fair amount of studies.
            - How are small watersheds defined/what definition are we using? Are there other criteria you'd like to consider?
        - 3 components: stream order, catchment size, flow metrics.
        - Very small watersheds flow estimates – is there flow viability in these streams? We expect to see change in water quality in the headwaters if we're applying BMPs in the headwaters. However, there are times in very small streams where they are without water – how will that impact the science?
        - Mark provided a slide of watershed selection criteria (last slide in his presentation). Criteria include: land cover, use and watershed characteristics;

existing monitoring; BMP implementation; watershed characteristics; and cooperation.

- Mark asked how much time we need to select sites. He also asked how do these sites fit into the larger network, or do they stand as their own sub-network. He said ideally these would eventually be load and trends sites existing for 10+ years.
- Peter said Cindy Johnson had some sites in mind that would be suitable in terms of agricultural interests for small watersheds. Others working on BMP related efforts and WIPs would have some target areas. Peter suggested it would be fairly quick to gather 1-3 sites given all the work going on.
- Mark said USGS can help with mapping BMP implementation.
- Peter suggested sites with sufficient implementation may be ideal.
- Scott Phillips (USGS) said in these small watersheds sometimes we need to see a 50% reduction in source to see a water quality signal in the rivers draining that area.
- For specific sites, Kaylyn Gootlyn (EPA) suggested Turtle Creek. They're a small watershed. John Clune is looking at sediment which is the source of their impaired status. They've put in a lot of BMPs and have a backlog of BMPs to place in their agricultural streams.
    - Jamboard exercise – do you have high priority sites and what criteria did you use in selecting sites for new monitoring?

Jamboard responses:

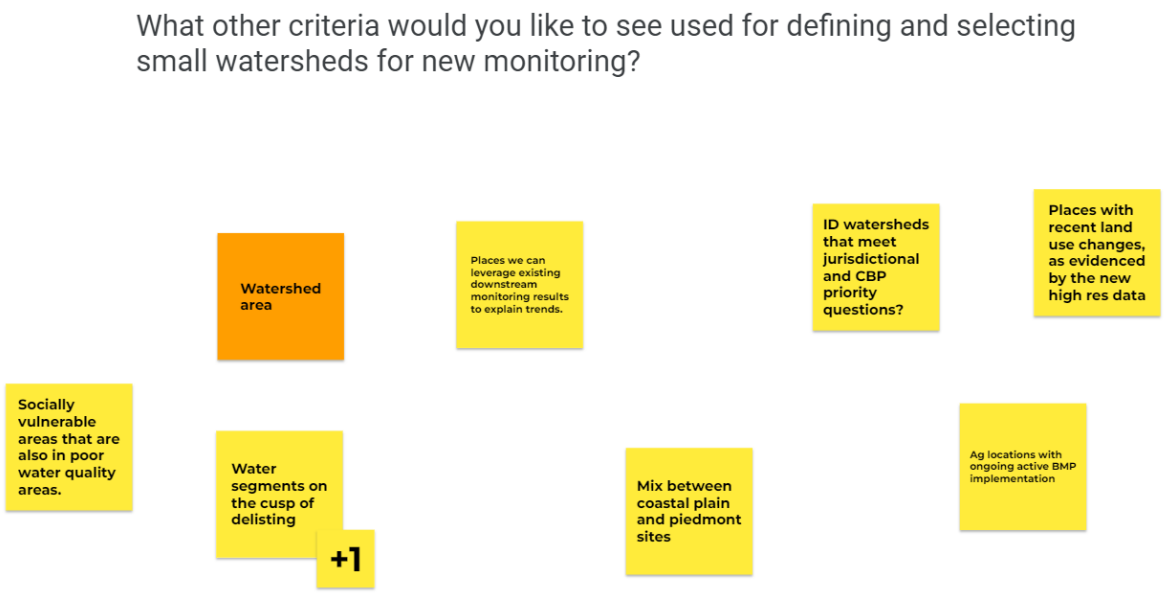

Image description: Jamboard asks, what other criteria would you like to see used for defining and selecting small watersheds for new monitoring?

Answers: Socially vulnerable areas that are also in poor water quality areas, water segments on the cusp of delisting (+1), watershed area, mix between coastal plain and piedmont sites, places we can leverage existing downstream monitoring results to explain trends, ID watersheds that meet jurisdictional and CBP priority questions, places with recent land use changes, as evidenced by the new high res data, ag locations with ongoing active BMP implementation.

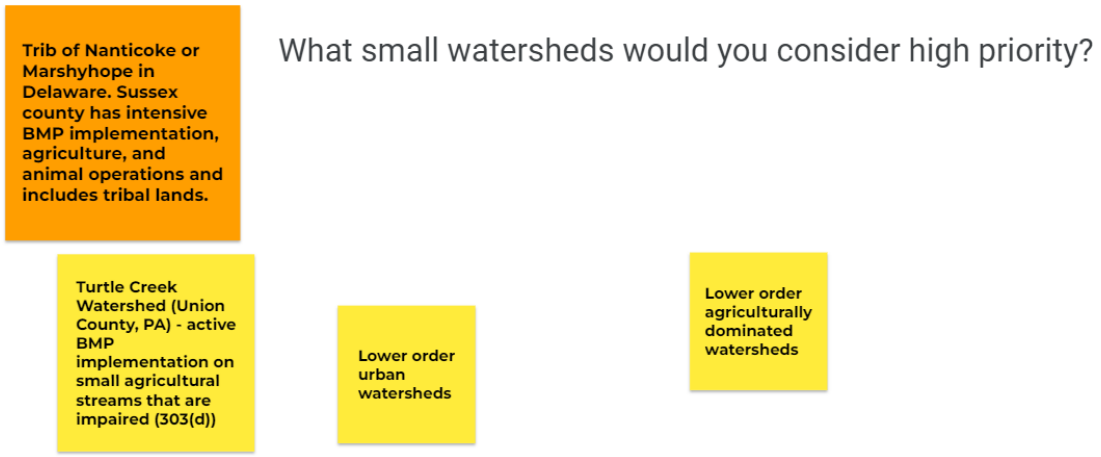

Image description: Jamboard asks, what small watersheds would you consider high priority? Answers: Trib of Nanticoke or Marshyhope in Delaware. Sussex county has intensive BMP implementation, agriculture, and animal operations and includes tribal lands. Turtle Creek Watershed (Union County, PA) – active BMP implementation on small agricultural streams that are impared (303(d)). Lower order urban watersheds. Lower order agriculturally dominated watersheds.

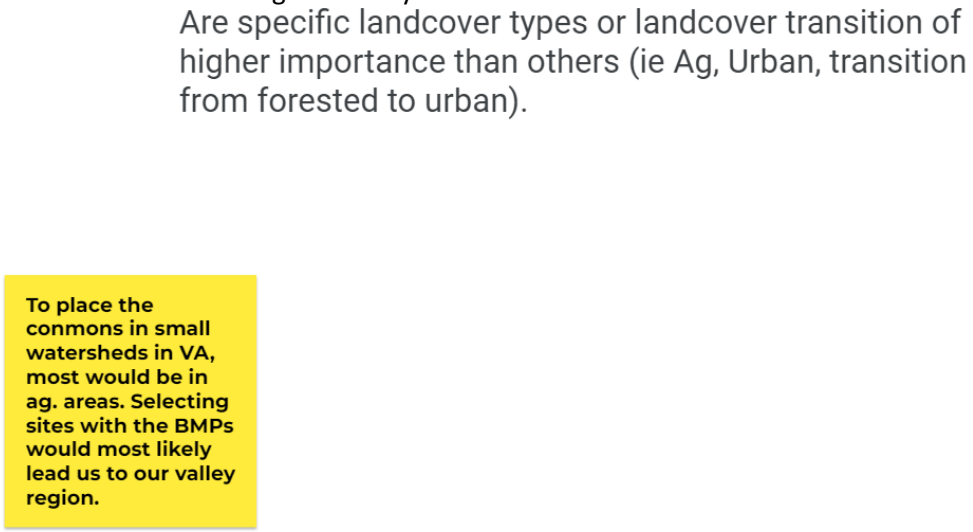

Image description: Jamboard asks, are specific landcover types or landcover transition of higher importance than others (ie Ag, Urban, transition from forested to urban)? Answer: To place the con-mons in small watersheds in VA, most would be in ag. Areas. Selecting sites with the BMPs would most likely lead us to our valley region.

- Introduction to Nieko Santoro's work (database) to guide network expansion considerations and decisions

- Nieko Santoro (USGS) gathered water quality data not in the water quality portal yet. He reached out to 61 state agencies, conservancy groups and riverkeepers and received data from 43 of them. He was trying to get back sampling data that had an emphasis on small watersheds with high agricultural impact, low urban development, and a history of sampling with the data archived.
- He processed the data by years sampled, number of samples and type of water quality data collected. This returned 30 unknown sites with a good list of quality data over a good timeline. This demonstrated the water quality portal we have is working well because over 97% of the data was already on that portal.
- Nieko analyzed data from the water quality portal to find monitoring sites that could be added to the nontidal network if it's expanded. He filtered 109,000 sites by watershed size (<250 sq. km.), >50 % Ag land, <5% urban land, proximity to current NTN sites, drainage area, number of years sampled (>5 years), BMP implementation near site, number of samples collected, and by the type of water quality data collected.
- This yielded a smaller list. Nieko plans to meet with Ken Hyer and Jimmy Weber to see if any of the sites on this smaller list will fit into the network as potential sites to add on.
- Peter asked if there is a map of these sites compared to current sites to look at a future meeting?
- Nieko said yes he has that map and can show it at a future meeting.
- Mark asked if Nieko included NGOs and conservation districts and universities?
- Nieko said yes he did and has a breakdown of which groups he included if anyone wants to see it.
- Ken said that he sees this as taking a 2-pronged approach. What Neiko is doing is a watershed agnostic approach to say what's out there for available data to filter those sites and understand existing information we could leverage and use. The other approach is discussions like with this group, asking what sites are out there from a pragmatic perspective that fill these criteria such as high agricultural land use, existing datasets and have existing or plan implementation. This is a more hands-on approach and considers what sites are of interest and high priority to different jurisdiction. Hopefully by combining these two approaches and balancing them we can find a way forward.

2:15 PM

- Discussion: Potential roles/feedback of the NTN
  - Examples of partnership approach for leveraging available funding in network enhancement – *Doug Moyer (USGS)*
  - Top down approach – identifying watersheds that meet all the criteria using data available. Bottom up approach – asking what watersheds are important to jurisdictions and where they are putting investments even if they don't meet all of the criteria.
  - Goal: to add additional sites, viewing the money for 5 sites as seed funding and then add jurisdictional funds or other funding sources to support additional sites.

- Examples of how USGS builds partnerships: bring some of our existing funds and use some of them to cover costs of infrastructure which can be hard for jurisdictions to overcome for that first year. They may have budgeted for operations and maintenance but have greater difficulty meeting the capital costs. These upfront equipment costs are often the prohibitive factor to getting monitoring going. So USGS is discussing matching with jurisdictional funds to add sites at jurisdictional priority locations that also meet the recommendations laid out in the PSC report.
- It's important to approach it as a sustaining partnership – we need your help as you know your watersheds best and where investments are being made and how can this be a sustaining partnership including operations.
- Peter asked for specific watersheds from participants.
- Doug Moyer said West Virginia (WV) folks are often asking for monitoring in headwaters of WV, and this could be a mechanism for getting that, aligning goals of WV and recommendations from the PSC report. Are there any resources coming out of WV that could couple with the funds allotted for the 5 sites?
- Doug Chambers (USGS) said he'd like to have further discussions with folks at WV Department of Agriculture and DEP, Nick Murray, Mindy Neil and Theresa Coon. He said that one of the sites that he thought of is Waites Run near Wardensville, WV. It's had monitoring going on for some time. It's nested within the Cacapon River watershed which is 99.7% forested with a fair amount of the drainage in national forest areas. Doug will speak with his counterparts in WV state agencies. We've shifted from trying to protect what we have to adding. Doug said there are brook trout in Waites Run and there's been electrofishing up to 2-3 years ago. It's a high quality stream. In the last few years there have been some eels as well.
- Mark Nardi commented they found eels 14 years ago as well in Waites Run.
- Tom Parham (MD DNR) said he can reach out to Maryland agricultural folks to see if there are any areas undergoing big changes. He asked if this is a product that Peter Claggett has? (Ag areas with major changes.)
- Peter said there is the latest land change output which is a 5-year product. He said Peter Claggett has stated it is challenging to pick up small scale changes in short time periods and yet now we have the opportunity to execute the outputs in that fashion so he wouldn't discount it.
- Tom said in order to see a response you have to look at major loading changes so if it rises up to visibility on Peter's work it might be something to consider.
- Peter Tango added they may have that tied to a longer scale vulnerability assessment of areas undergoing significant change. Renee Thompson may be able to help us.
- Reach out to Lucretia Brown.
- Cindy Johnson (VA DEQ) said for Virginia, they don't have specific sites at this time but she has brought it up with her supervisors and the suggestion was that probably Valley was their best bet to meeting the watershed size criteria, ag and BMP. She'll reach out to Valley regional office to see if they can come up with

suggestions. Then she'll get together with Doug to talk about what would be the best bet. As far as funding goes at the state level, it's always a challenge. We want to work with federal partners to expand the network and believe monitoring is very important but there is a process here and that's you tell us how much it's going to cost, we go to the general assembly and ask for more money, and if we get any, we see if we can do something. But we'll try to help in that area as well.

- Tammy Zimmerman (USGS) said for Pennsylvania, they have a state wide water quality network. There are a number of sites where they're sampling in the Chesapeake Bay watershed for DEP that might be every other month or monthly. That's an example of where you can leverage funds already in place for a different purpose and maybe upgrade that site if it's a small watershed site in an agricultural area to get finer scale information. Your dollars will further because there's already stream flow and discrete water quality sampling covered monthly or every other month. Tammy will discuss with Mark Brickner (PA DEP) and Jamie Shallenberger (SRBC).
- Peter said that Claire Buchanan and others looked at MD core trend network and looked at constituents of key interest and other parameters potentially informative to upstream influences. He said the findings were very interesting.
- Peter also said there is interest in having stronger network representation in Delaware.
- Lucretia Brown (DC DOEE) said that she'll talk to people in the watershed group to see if they have any future restoration planned to get pre- and post-restoration data. It would likely be in the Anacostia Watershed because they're doing a huge Anacostia restoration project and they want to collect as much data as possible. Lucretia suggested a site around Bennett Road near Petco stations which are considered hotspots for pollutants. She also suggested Pope Branch as a good option, but she'll need to speak with people more closely involved with the Anacostia remediation project in order to capture water that's feeding into the Anacostia mainstem from specific locations.
- Peter said the Anacostia watershed is a great place to focus with all the management work currently underway there.
- Scott Phillips (USGS) wrapped up the meeting saying these small sites are part of the network, not something separate, as we try to fill this gap of lack of representation of small watersheds. He also encouraged the group to not deliberate too long on the site selection, and that the ultimate decision will come from this workgroup.

3:00 PM Adjourn